

IMF Working Paper

Dismal Employment Growth in EU Countries: The Role of Corporate Balance Sheet Repair and Dual Labor Markets

Bas B. Bakker and Li Zeng

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European Department

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Prepared by Bas B. Bakker and Li Zeng¹

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Abstract

This paper argues that the large differences among EU countries in post-crisis employment performance are to a large extent driven by the need to adjust corporate balance sheets, which had greatly deteriorated during the boom years in some countries but not in others. To close the large gaps between saving and investment, firms reduced investment and cut costs to boost profits. With much of the cost adjustment falling on firms' wage bills, employment losses were largest in countries under the most intense pressures to improve corporate profitability and with limited wage flexibility due to labor market duality.

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Author's E-Mail Address: bbakker@imf.org; lzeng@imf.org

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EXECUTIVE SUMMARY

The post-crisis employment performance has differed enormously across the economies of the EU. Between 2008 and 2011, employment dropped by 14 percent in Ireland, but increased by 2 percent in Poland and Germany.

This paper argues that these differences are to a large extent driven by the need to adjust corporate balance sheets, which had greatly deteriorated during the boom years in some countries but not in others. In the pre-crisis boom years, the saving-investment gap of firms had widened in a number of countries and corporate debt had increased. Once the crisis hit, firms were forced to reduce the large saving shortfalls, which they did by reducing investment and by cutting costs to restore profitability and increase corporate saving.

With much of the cost adjustment falling on firms' wage bills, employment losses were largest in countries under the most intense pressures to improve corporate profitability and with limited wage flexibility due to labor market duality. In countries where profits had not deteriorated during the boom years, where there had not been a sharp increase in corporate debt, and where labor market duality was less pronounced, employment and output losses were much more moderate.

Regressions of employment growth on GDP growth, profit share increases, and the share of temporary workers (an indicator of labor market duality) explain almost 90 percent of the cross-country variation in employment growth between 2008 and 2011 in a sample of 23 EU countries. Regression of employment growth on the *pre-crisis* deterioration in the profit share alone explains 60 percent of the cross-country variation.

With these drivers of employment developments, some seemingly counter-intuitive cross-country correlations become understandable. In the post-crisis period increases of corporate profitability and GDP growth are negatively correlated across countries: countries where the profit share has increased sharply have seen significant losses in employment, while countries where employment has held up well, generally saw a decline. Similarly, labor productivity and GDP growth were negatively correlated—a striking contrast from the positive relationship observed during normal times.

The analysis in this paper suggests that while the large employment losses in many countries have been very painful, they may have a silver lining: they have contributed to the much needed restoration of the financial health of the corporate sector. It is noteworthy that profits in several of the most crisis-affected countries, after a sharp deterioration in the pre-crisis years, have rebounded strongly. While the adjustment has deepened the recession, it has also help set the stage for renewed growth.

The results also suggest that there is a trade-off between wage adjustment and employment losses. To restore profits, firms need to reduce the wage bill, and this can occur through either price adjustment or quantity adjustment. The less wages adjust, the higher will be the

decline in employment. Countries with dual labor markets tend to have less adjustment of wages, and consequently have seen larger declines of employment. To the extent that wage adjustment is associated with lower employment losses, it also does not need to have a negative impact on aggregate demand.

I. INTRODUCTION

1. **Since the onset of the global crisis, there have been striking differences in labor market developments among EU countries.** These differences are clearly visible in the *unemployment* rates. Between 2008 and 2012, the unemployment rate increased from 11.4 to 25.0 percent in Spain, but declined from 7.5 to 5.5 percent in Germany. The contrast is even starker when we look at *employment* data. Between 2008 and 2011, employment dropped by 14 percent in Ireland, but increased by 2 percent in Poland and Germany.
2. **Much of these differences are the result of the differences in real GDP growth.** A scatter chart of real GDP growth and employment growth between 2008 and 2011 shows a strong correlation between the two (Figure 1). Latvia, which had the largest decline in real GDP between 2008 and 2011, also experienced one of the largest reductions in employment. And Poland, which had the largest *increase* in real GDP during this time period, also had one of the best employment outcomes.
3. **However, in a number of countries, the losses in employment far exceed what could be expected given the drop in GDP.** This is particularly the case in Bulgaria, Ireland and Spain. Bulgaria, for example, saw a decline of real GDP of 3½ percent between 2008 and 2011, while employment dropped by a staggering 12 percent. Similarly, Spain had a similar decline in GDP as Italy, but employment in Italy dropped by only 2 percent, while employment in Spain fell by 11 percent. Indeed, in Bulgaria, Ireland and Spain, the Okun curve seems to have shifted since 2008, with large employment losses relative to GDP declines (Figure 2A). This shift in the Okun curve contrasts with other countries, where it does not seem to have changed much (Figure 2B).
4. **This paper aims to explain why employment growth in some countries has been so dismal.** To this end, we compare employment growth between 2008 and 2011 in 23 EU countries.² We focus on the employment growth differences over the entire 3-year period rather than in individual years, to better highlight the structural factors that may have played a role in these differences.

² Our analysis ends in 2011, as profit and balance sheet data for the nonfinancial corporate sector—which are an important part of this study—were not yet available for 2012. In this study, we include all EU members, with the exception of Cyprus, Luxembourg, Malta, and Romania. Romania has been excluded because of data problems. Between 2008 and 2011, total employment declined by only 2½ percent, a number that does not seem consistent with the sharp drop in the number of employees (12 percent). We also excluded Bulgaria in parts of the paper due to data problems. The wage bill and wage share in 2007 seem to have been underestimated in the National Accounts, probably reflecting the large size of the informal economy. The underestimation of the wage bill (an important component of household income) is evident in the very negative household saving rates in that year (-33 percent of disposable income; -17 percent of GDP).

5. **To preview our findings, the paper finds that corporate restoration of profits after a pre-crisis borrowing binge has been a key factor behind the dismal employment performance in some countries.** In a number of countries corporate debt increased sharply during the pre-crisis boom years, often accompanied with an erosion of profitability. When the crisis hit, firms in these countries tried to address the debt overhang by cutting back investment and raising corporate profitability and saving—through closing down loss-making production capacity, and by boosting labor productivity. Indeed, in the 2008–11 period, we find a strong *negative* correlation between changes in the profit share and employment and output growth: profit shares increased most in countries with the largest drop in employment and output. By contrast, those that saw more moderate declines in GDP and employment—or even an increase—in general saw a decline in their profit shares.

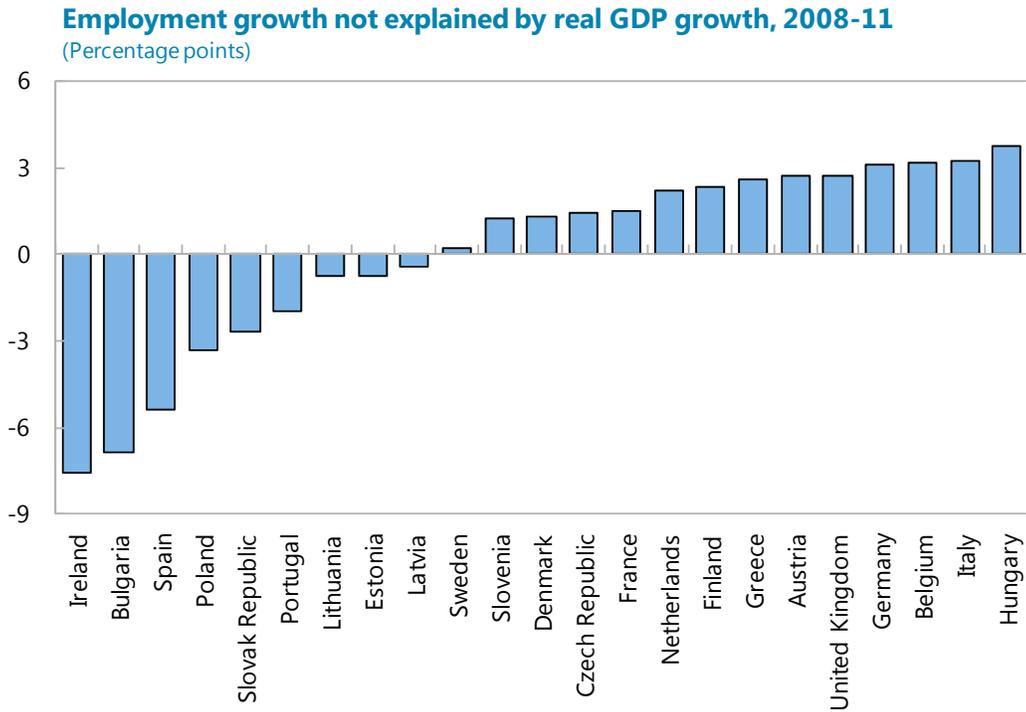
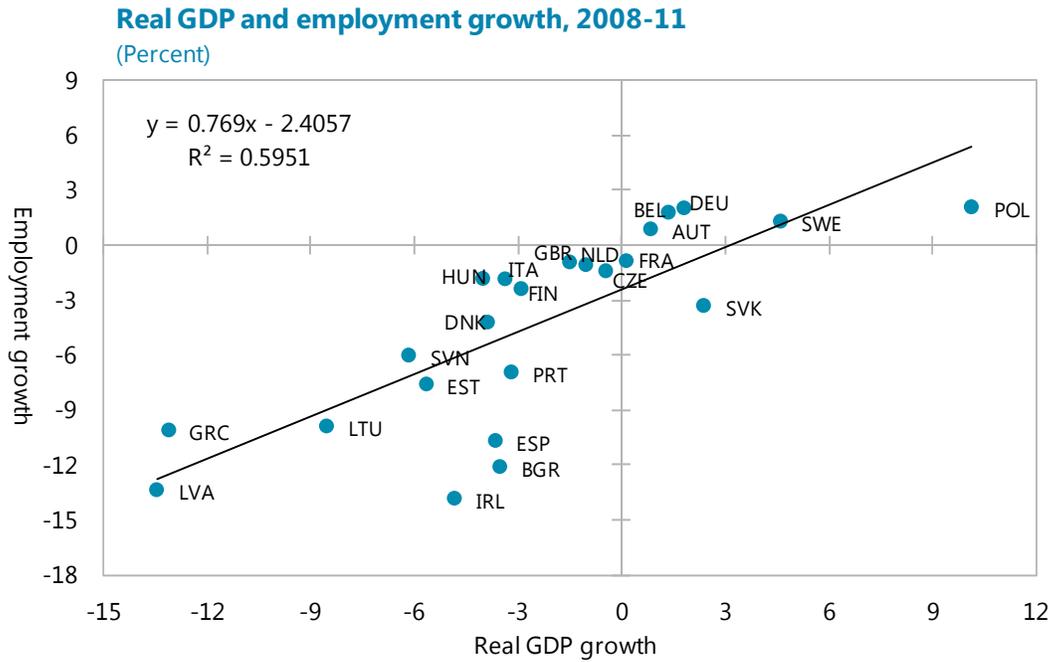
6. **Another contributing factor has been the duality of the labor market, with higher degrees of labor market duality seeing less adjustment of wages and more adjustment of employment.** Our results show that in countries with higher shares of temporary employment, wages are less responsive to increases in unemployment, which likely reflects the strong position of insiders. In these countries, much of the increase in corporate profitability—the reduction in the wage share—has been the result of a reduction in employment, rather than a reduction in wages.

II. LITERATURE REVIEW

7. This paper combines the findings of several strands of literature:

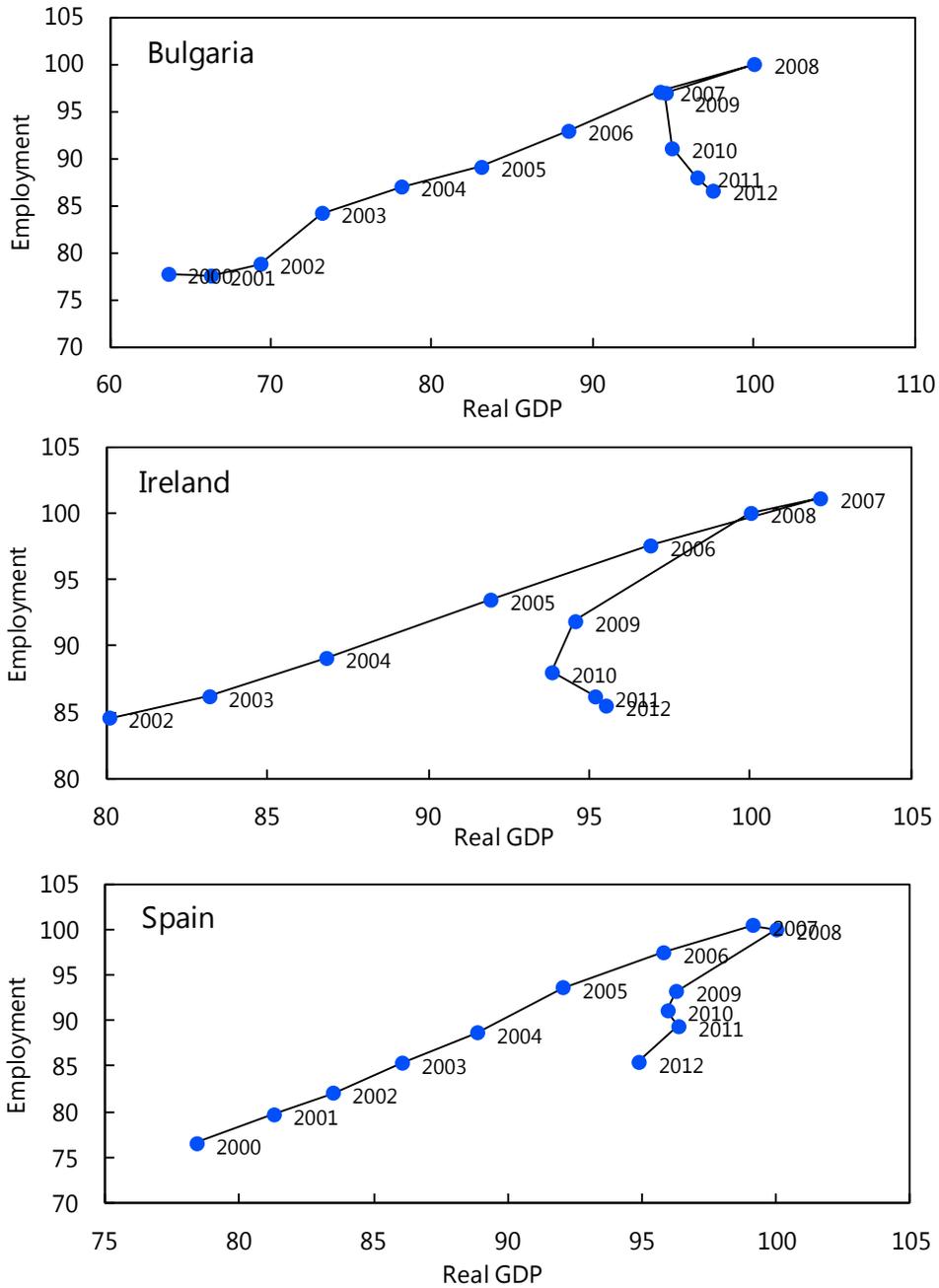
- **Financial shocks can affect employment through channels that go beyond the impact of output declines.** IMF (2010), in a study of output and unemployment dynamics in advanced economies during the Great Recession, shows that countries with similar output declines had often markedly different changes in unemployment. It finds that “during recessions, financial crises, large house price busts, and other sector shocks raise unemployment beyond the level predicted by Okun’s law.” Reinhart and Rogoff (2009) find that in the aftermath of banking crises, the duration of unemployment increases (averaging over four years) is considerably longer than that of output declines (averaging roughly two years).
- **Corporate debt overhang can affect output and employment.** Lamont (1995) argues that during economic downturns, funding pressures may force corporates to repair their balance sheets, which affects their hiring/firing decisions. The employment impact of a given output shock may thus critically depend on the corporate sector’s balance sheet, resulting in potentially very different labor market adjustments. In a similar vein, Koo (2008) suggests that corporate balance sheet repair has been a fundamental driver of Japan’s prolonged recession since the early 1990s. Most recently, Banco de Espana (2013) finds that since 2008, Spanish firms with a higher starting level of debt going into the crisis have cut investment and employment more sharply than those with lower debt.

Figure 1. Real GDP and Employment Growth, 2008-11



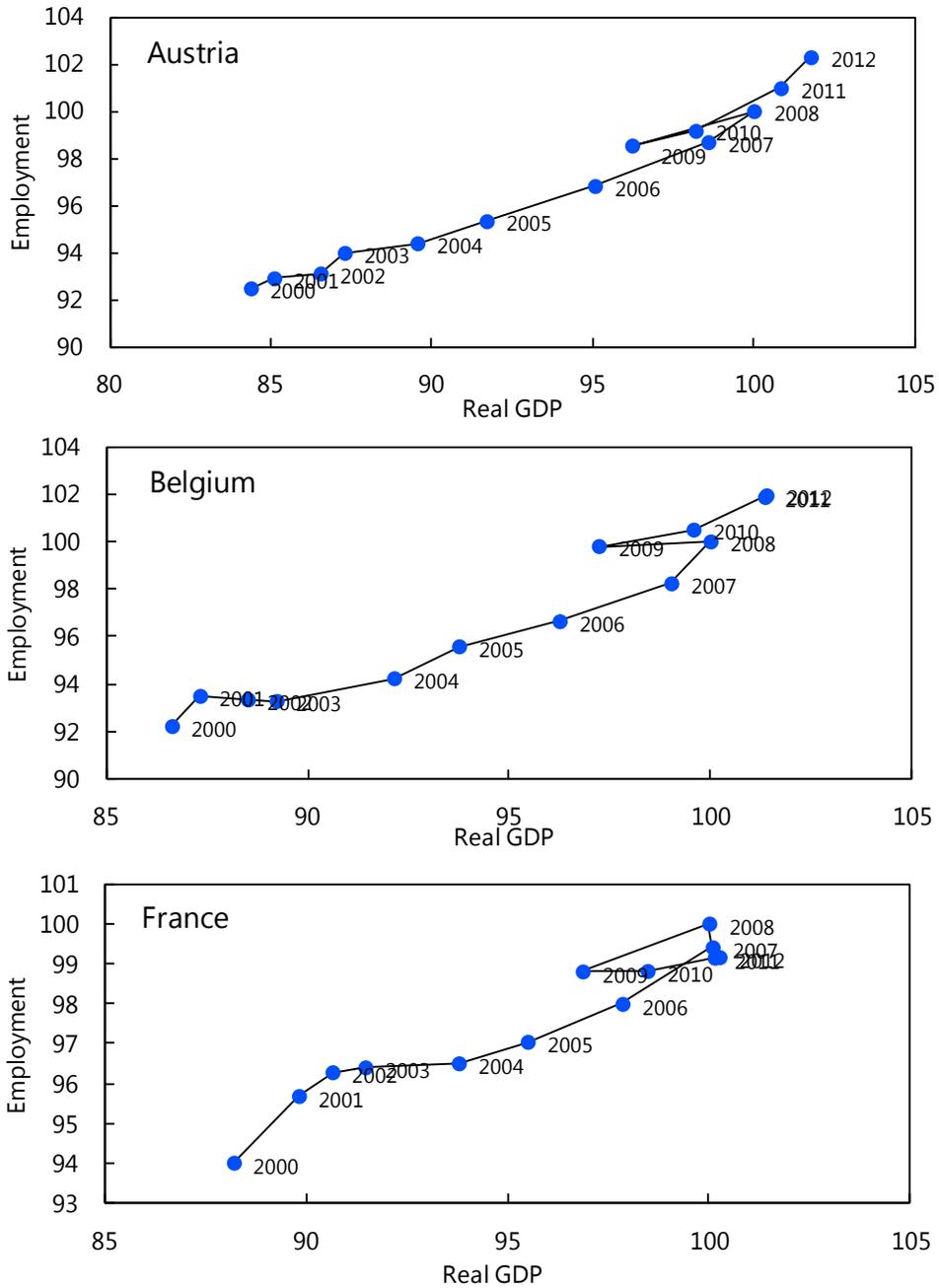
Source: IMF, World Economic Outlook database.

Figure 2A. Real GDP and Employment: Where Okun's Law Has Not Held Up
(2008=100)



Source: IMF, World Economic Outlook database.

Figure 2B. Real GDP and Employment: Where Okun's Law Has Held Up
(2008=100)



Source: IMF, World Economic Outlook database.

- **Labor market duality can lead to excessive labor shedding during downturns.** OECD (2012) shows that higher prevalence of temporary contracts is associated with more labor shedding during economic downturns.³ It links the prevalence of temporary contracts to the severity of employment protection, a finding also reported in Cahuc et al (2012), Boeri (2011), and IMF (2010).

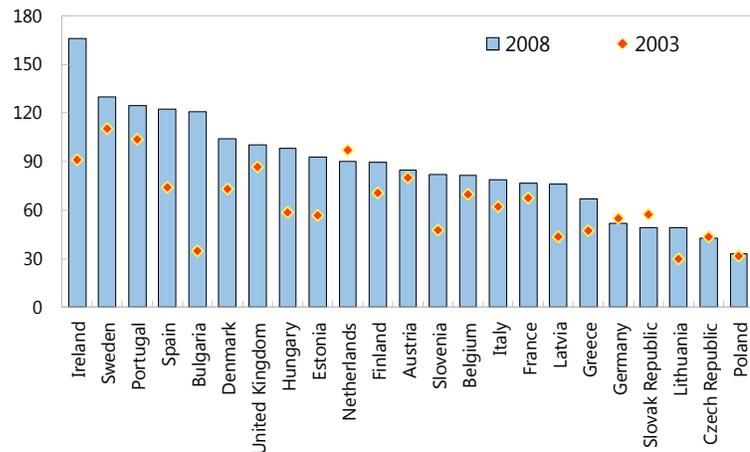
III. CORPORATE BALANCE SHEET REPAIR AND THE PRE-CRISIS BORROWING BINGE

8. **The strong increase in corporate profitability since 2008 in some countries is the result of a debt overhang that resulted from a borrowing binge during the pre-crisis boom years.**

Between 2003 and 2008, debt of the nonfinancial corporate sector increased sharply.

(Figure 3). Debt increases were particularly large in Bulgaria, Ireland and Spain.

Figure 3. Debt of Nonfinancial Corporate Sector, 2008 vs. 2003
(Percent of GDP)



Source: Haver Analytics.

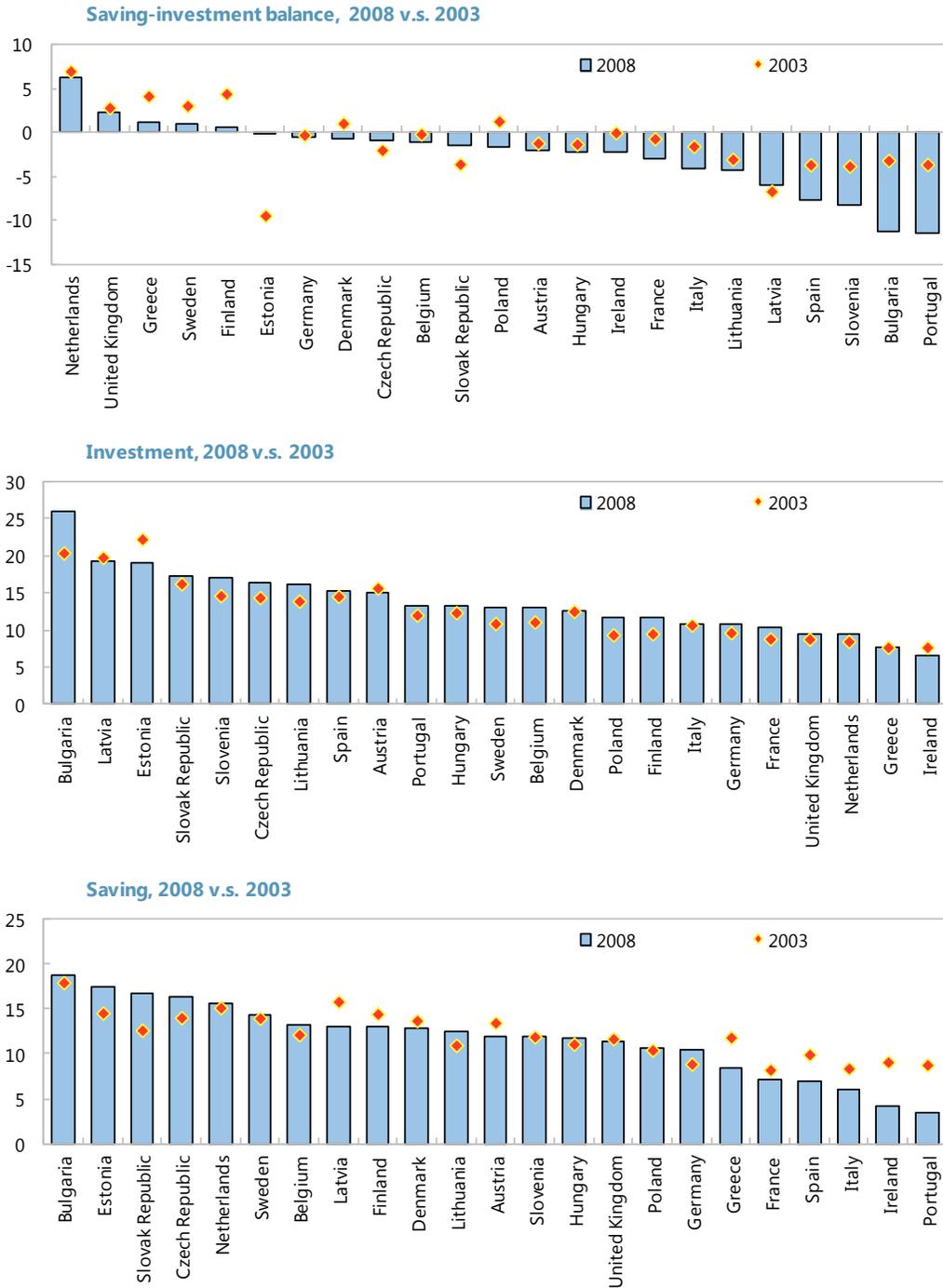
9. **The debt increase was the counterpart of a sharp deterioration of the nonfinancial corporate sector's saving-investment balance.** By 2008, the gap between saving and investment exceeded 5 percent of GDP in Latvia, Spain, Slovenia, Bulgaria and Portugal. The large gap made firms vulnerable to a sudden deterioration of financing conditions. A saving gap did not exist in all countries though: in the Netherlands, the United Kingdom, Sweden, and Finland, corporate saving exceeded investment.

10. **The deteriorating saving-investment balance reflected both rising investment, and—in about half of the countries—a decline of corporate saving,** that is, retained profits (Figure 4). The decline in corporate saving probably was the result of rising wage costs, driven by tightening labor markets. The relative importance of these factors differed across countries (Figure 5): in Portugal, the increase was largely the result of a drop in

³ OECD (2012) tries to explain the differences in resilience exhibited by labor markets during economic downturns. Its analysis is built upon the literature searching for underlying determinants of structural unemployment, including, among others, OECD (2006) and Bassanini and Duval (2006a, 2006b, 2009). It finds that structural policies and institutions indeed matter for labor market resilience, and that those structural policies and institutions that are conducive to good structural labor market outcomes are also good for labor market resilience.

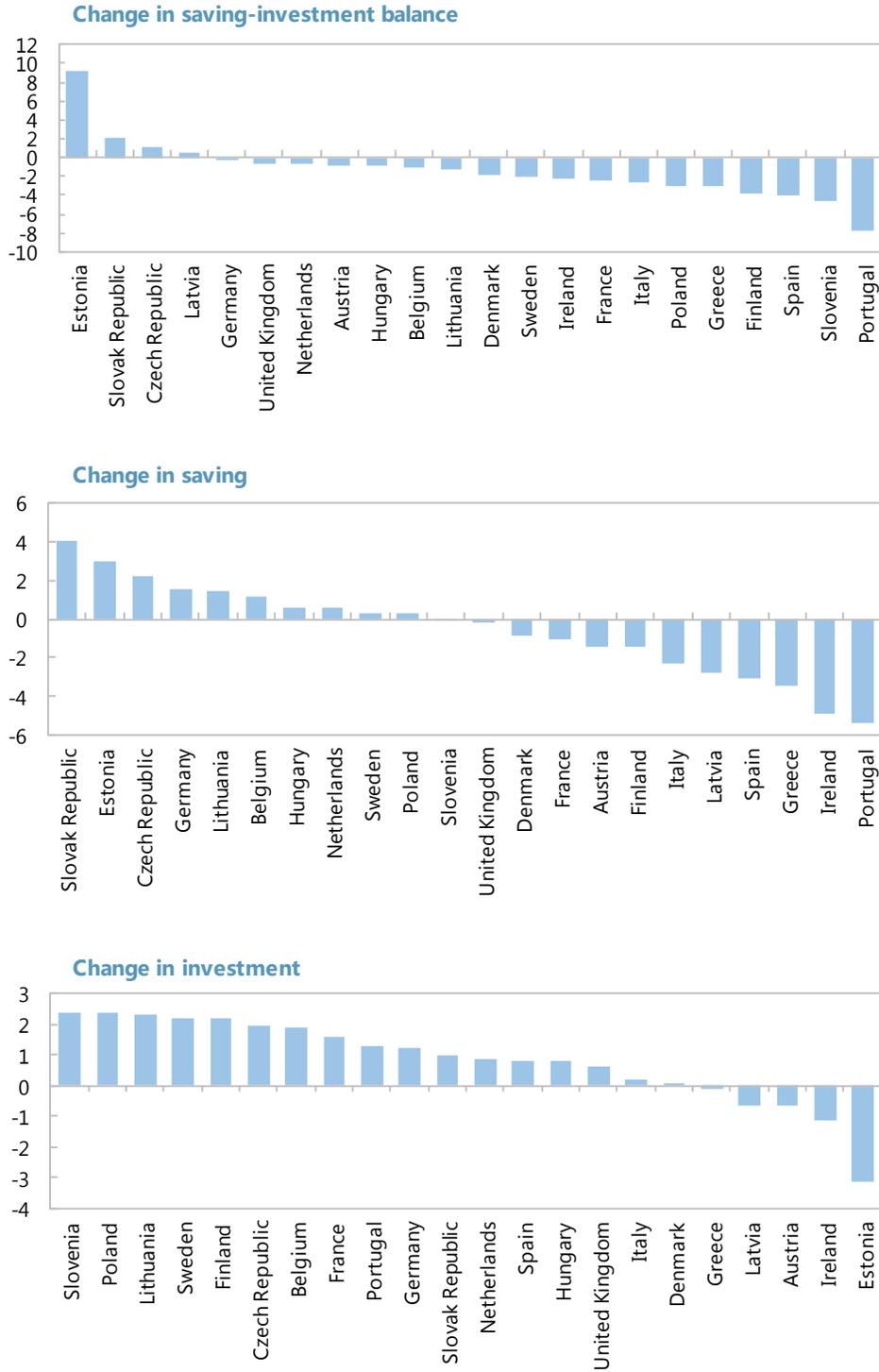
saving, while in countries such as Slovenia and Poland, it was mainly due to the increase in investment.

Figure 4. Nonfinancial Corporate Sector: Saving-Investment Balance, 2003 and 2008
(Percent of GDP)



Source: Haver Analytics.

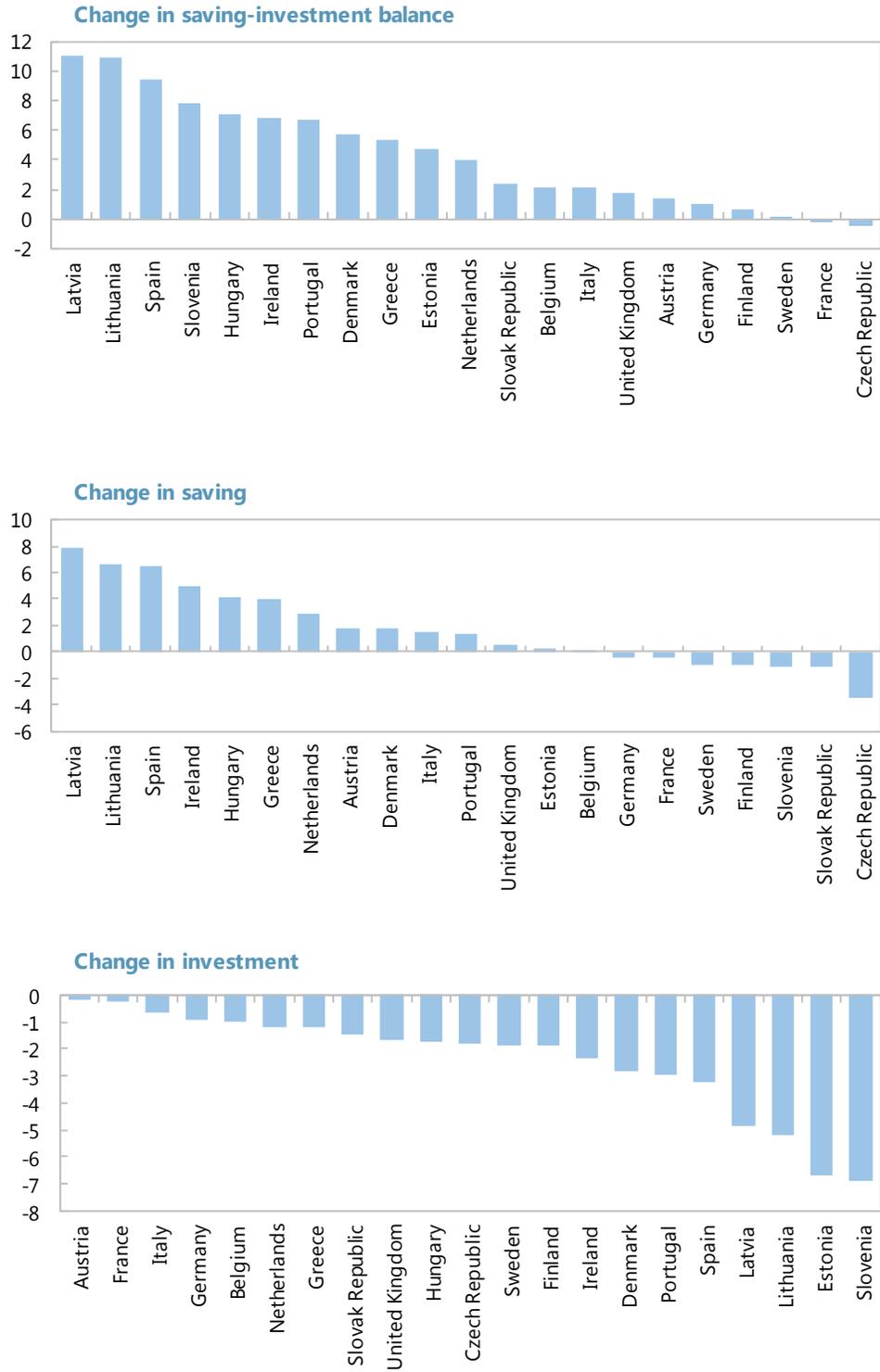
Figure 5. Nonfinancial Corporate Sector: Change in Saving-Investment Balance, 2003-08
 (As share of GDP, percentage points)



Source: Haver Analytics.

Figure 6. Nonfinancial Corporate Sector: Change in Saving-Investment Balance, 2008-11

(As share of GDP, percentage points)



Source: Haver Analytics.

11. **These developments did not occur at the same scale in all countries.** Indeed, in some countries like the Netherlands, the Slovakia Republic, Germany, the Czech Republic and Poland, there was little or no increase in corporate debt, and the financing gap remained very small—or positive.

12. **Once the global crisis hit, the large saving shortfalls were no longer sustainable,** and over the next few years, firms managed to reduce the gaps substantially. Between 2008 and 2011, the corporate saving-investment balances improved in almost all countries (Figure 6, top panel). The improvement was most dramatic in Latvia, Lithuania, and Spain.

13. **Part of the improvement in the saving-investment balance was the result of a drop in investment.** The drop in investment was most severe in Emerging Europe (Figure 6, bottom panel), likely reflecting a combination of the unwinding of a stronger pre-crisis investment boom and more severe financing pressures—particularly for countries that were not part of the euro area.

14. **Another contribution came from the improvement of corporate saving—the result of an increase in corporate profitability.** Corporate saving increased in most countries, with particularly large increases in Latvia, Lithuania, Spain, and Ireland (Figure 6, middle panel).

IV. THE IMPACT OF CORPORATE RESTRUCTURING ON OUTPUT AND EMPLOYMENT

15. **Higher corporate saving was the result of an increase in the profit share, viz. a decline in the wage share.**⁴ Countries that saw a sharp increase in the corporate saving to GDP ratio all had a large increase in the profit share (Figure 7).

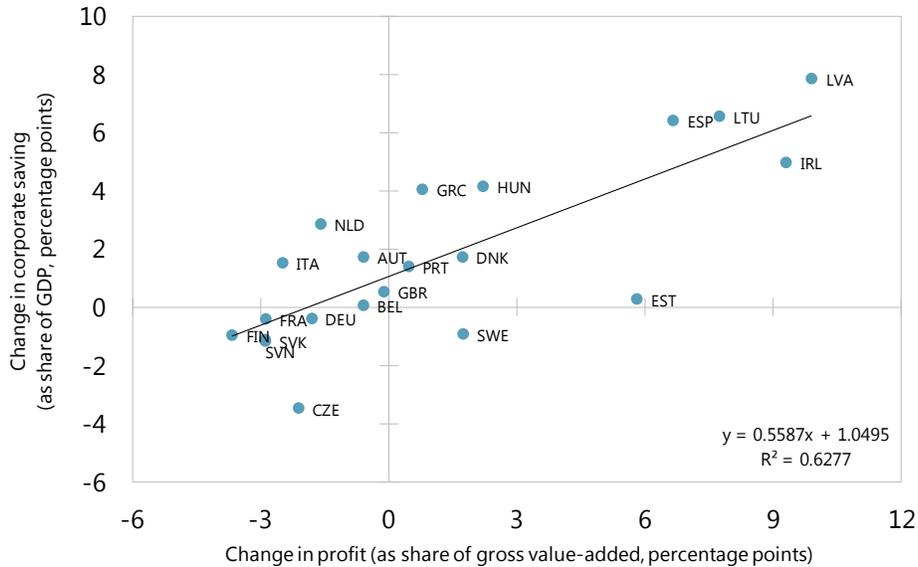
16. **It is striking how large the differences have been in the extent to which corporate profit shares have increased between 2008 and 2011.** Profit shares increased sharply in the Baltic countries, Ireland, and Spain. By contrast they declined in the Netherlands, Germany, and other core euro area countries.

17. **These differences likely reflect that pressures to improve corporate profitability were not the same across countries.** Pressures to increase profitability were particularly severe in countries where corporate debt had increased a lot, or where profitability had been eroded much during the boom years. In countries where the saving shortfall was small, profitability had not been eroded, or corporate debt had not increased much, there was much less pressure to increased profits—profits often declined, as firms kept their labor force despite a drop in output.

⁴ The profit share is defined in this paper as $(1 - \text{wage share})$, where the wage share is the ratio of wages to gross value-added of the non-financial corporate sector.

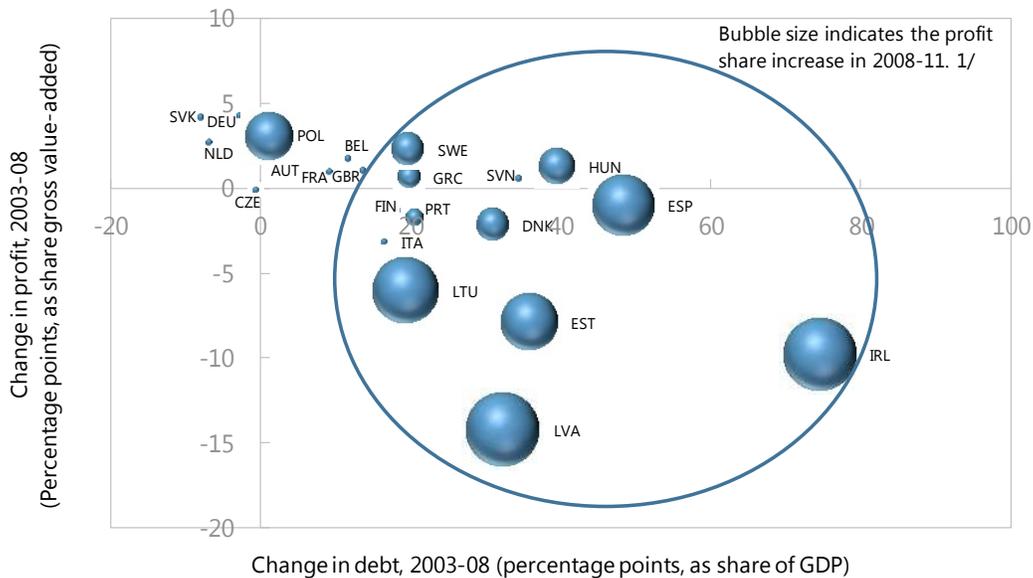
18. **Indeed, the increase in profit share since 2008 is linked to the pre-crisis increase in corporate debt and deterioration in profits.** (Figure 8). It is noteworthy that the sharpest increases in corporate profitability have taken place in the bottom right quadrant—countries where the debt had increased and profitability had fallen during the pre-crisis years.

**Figure 7. Nonfinancial Corporate Sector:
Change in Profit Share versus Change in Saving, 2008-11**



Sources: IMF, World Economic Outlook database; and Haver Analytics.

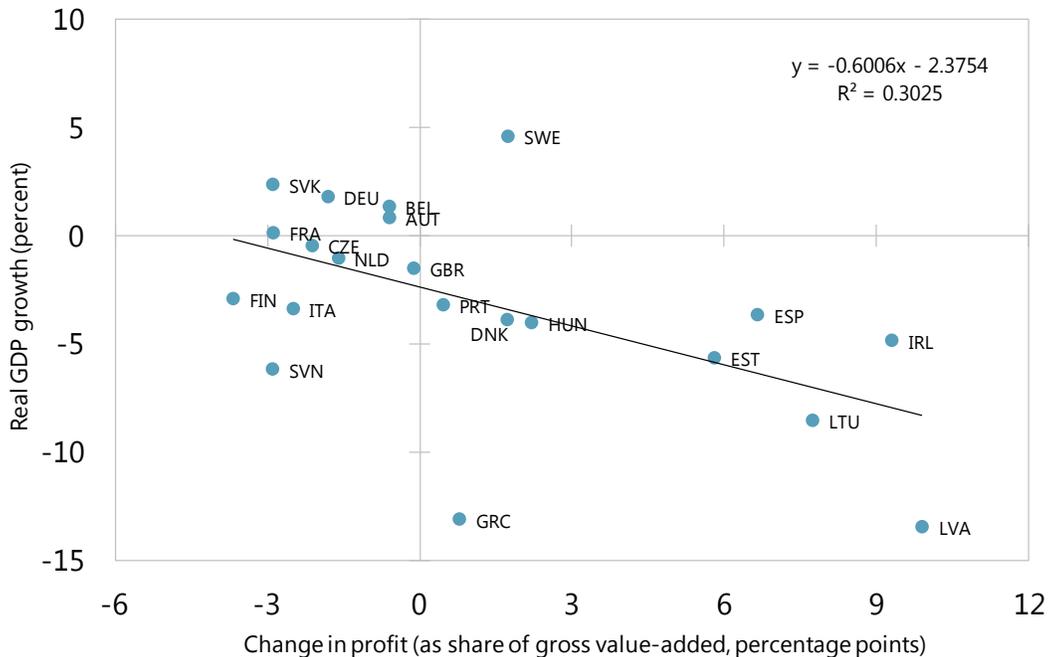
Figure 8. Profit Share Increase since 2008 versus Pre-Crisis Balance Sheet Deterioration



1/ For instance, Latvia has the largest bubble because the profit share of its nonfinancial corporate sector increased by 10 percentage points between 2008-11, highest among all countries. The bubble size is set to 0.05 for countries whose profit shares declined in 2008-11.
Source: Haver Analytics.

19. **Equally striking is the negative relationship between the increase in the profit share and GDP growth** (Figure 9). Profit shares increased sharply in several countries with large output declines, while it declined in countries where output increased. This suggests that—for this particular period—causality did not go from GDP growth to profits, but rather that corporate restructuring (which boosted corporate profits) had a negative impact on GDP.

Figure 9. Change in Profit Share of Nonfinancial Corporate Sector versus Real GDP Growth, 2008-11



Sources: IMF, World Economic Outlook database; and Haver Analytics.

The impact of profit share increases on employment

20. **Profit share increases are associated with poor employment outcomes** (Figure 10). Countries where the profit share has increased sharply have seen significant losses in employment, while countries where employment has held up well, have generally seen a decline of profit share during this period.

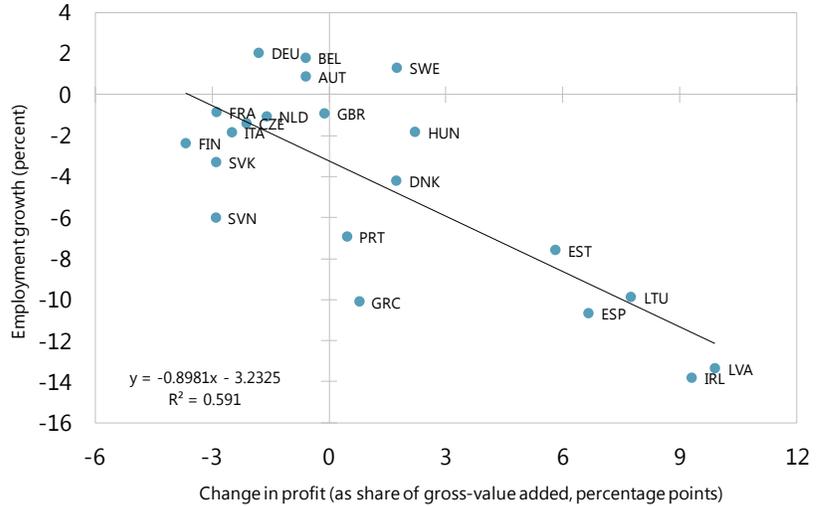
21. **Part of the poorer employment outcomes is because countries with larger increases in profit shares saw bigger drops in output; another reason is that they saw bigger increases in labor productivity** (Figure 11). The increase in productivity likely reflects restructuring by enterprises to produce the same output with fewer workers. It may

partly also reflect a composition effect, as sectors with lower labor productivity (including in particular the construction sector in some countries) were hit disproportionately by the crisis.⁵

22. The combination of a sharp increase in labor productivity with a decline in output is strikingly different from the positive relationship observed during normal times.

Between 2003 and 2008, faster GDP growth was associated with higher labor productivity growth (Figure 12, top panel). Between 2008 and 2011, this relationship broke down, and labor productivity growth was fastest in some of the countries with the largest output declines. (Figure 12, bottom panel).

Figure 10. Change in Profit Share of Nonfinancial Corporate Sector versus Employment Growth, 2008-11

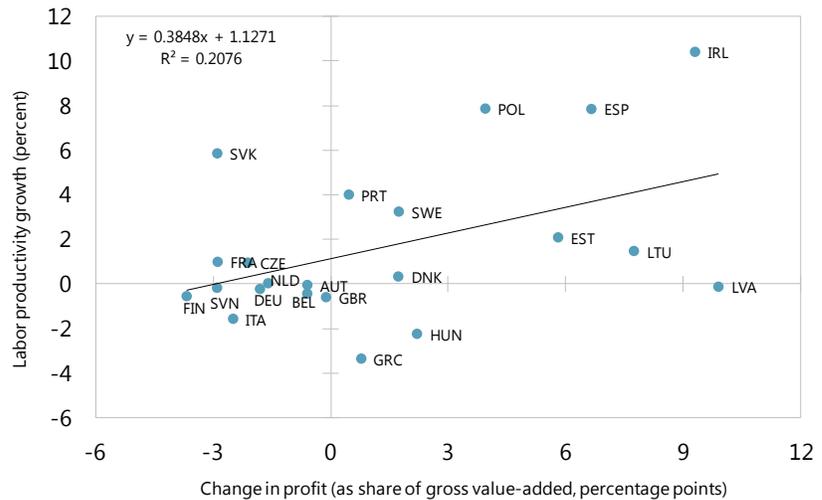


Sources: IMF, World Economic Outlook database; and Haver Analytics.

23. Changes in profit shares can explain much of the residuals in the GDP-employment scatter chart of Figure 1

(Figure 13). There is a strong correlation between the increase in the profit share and the residual in the GDP-employment scatter chart, as countries that had sharp increase in the profit share had a worse employment outcome than would be expected given their output changes.

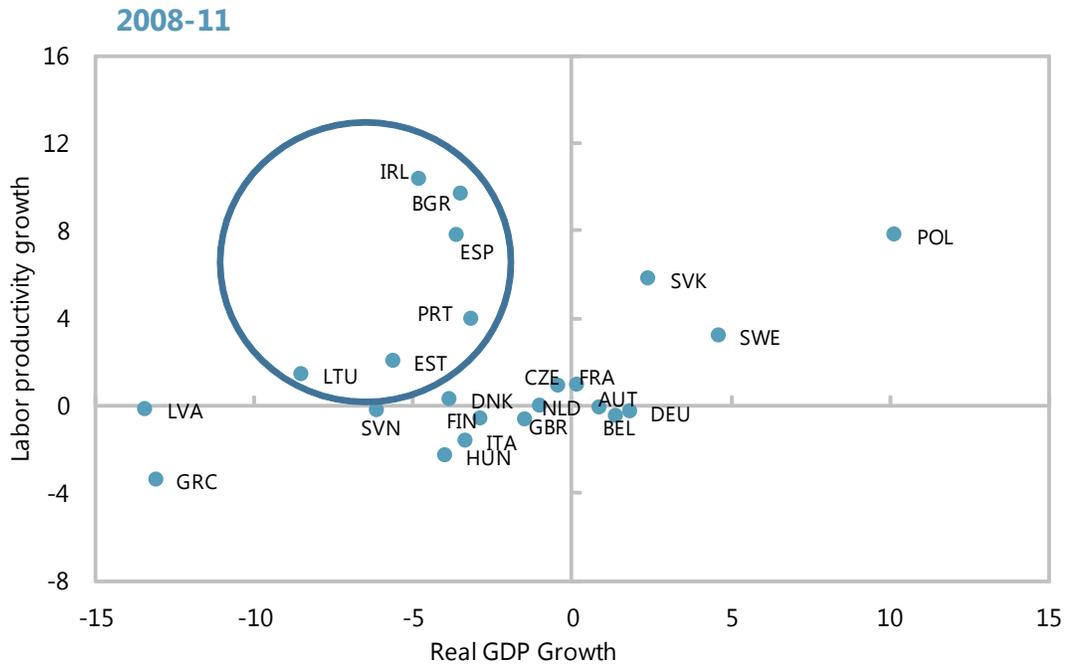
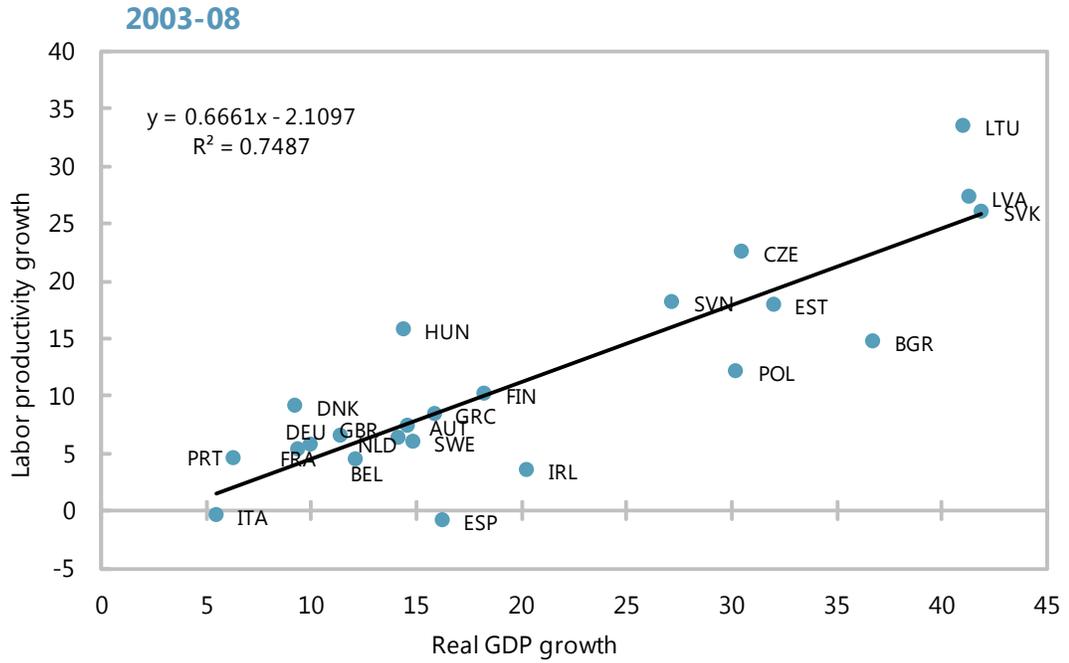
Figure 11. Change in Profit Share of Nonfinancial Corporate Sector versus Labor Productivity Growth, 2008-11



Sources: IMF, World Economic Outlook database; Haver Analytics; and IMF staff calculations.

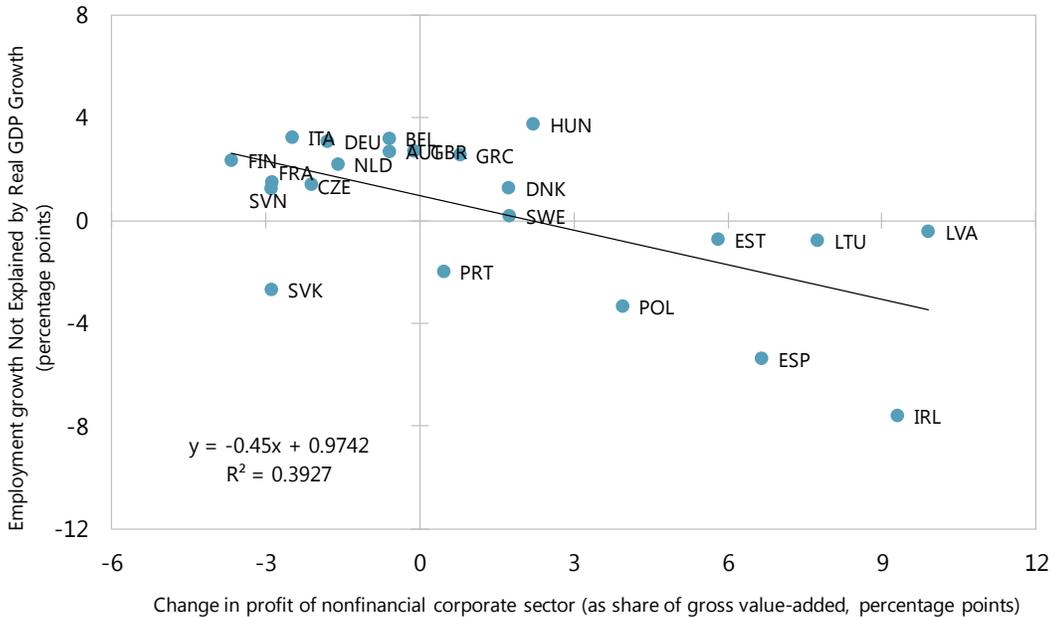
⁵For instance, Central Bank of Ireland (2011) points out that “while employment contracted considerably more than predicted by GDP in Ireland, this is partially a compositional effect. Output in the high-profit broad chemical sector increased to 2011 while value-added from the low-productivity, employment intensive construction sector fell over the same period.”

Figure 12. Real GDP and Labor Productivity Growth
(Percent)



Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Figure 13. Change in Profit Share of Nonfinancial Corporate Sector versus Employment Growth Not Explained by Real GDP Growth, 2008-11

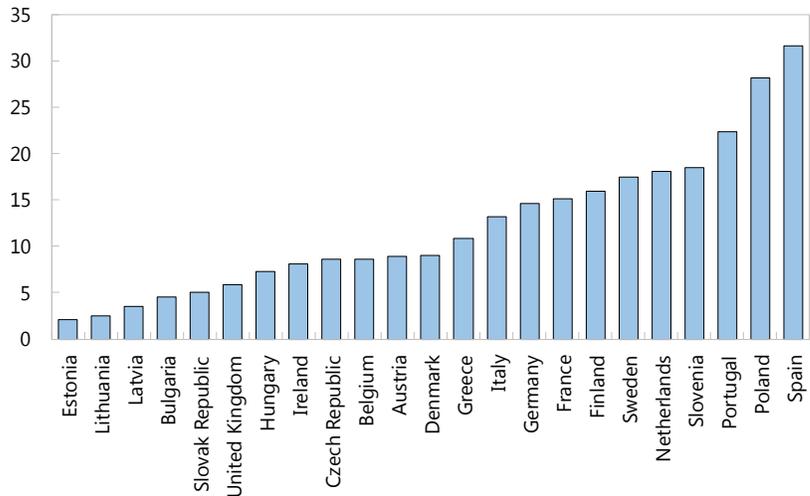


Note: The sample is slightly different from Figure 1, as Bulgaria is dropped due to missing information. Sources: IMF, World Economic Outlook database; and Haver Analytics.

V. THE ROLE OF LABOR MARKET DUALITY

24. **There are large differences across European countries in the duality of the labor market.** In 2007, almost a third of employment in Spain consisted of temporary contracts, while in the Baltics, the share was less than 5 percent (Figure 14).

Figure 14. Share of Temporary Employment, 2007 (Percent)



Sources: OECD Statistics; and World of Work Report 2012.

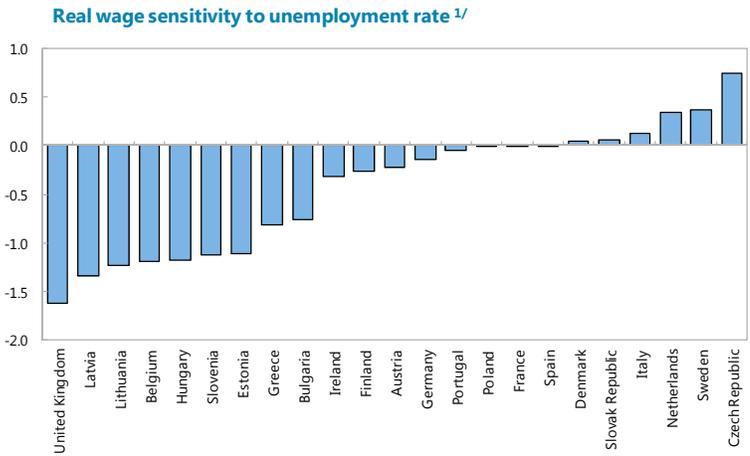
25. **It is likely that duality of labor markets has been another factor behind the large differences in employment growth.** Increases in profit shares—that is, declines in wage shares—can be brought about through either reductions in employment or reductions in wages. We would expect that in

countries with high degrees of labor market duality—where insiders are well protected, but a significant group of workers is on temporary contracts—much of the adjustment will go through employment reductions rather than wage cuts, as insiders—who set wages—have little incentive to adjust, while outsiders can easily be fired.

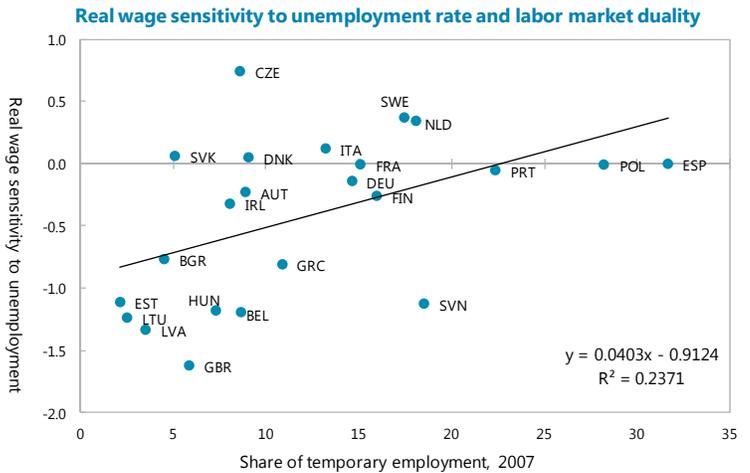
26. **Indeed, in countries with a high share of temporary employment, real wage growth is much less sensitive to unemployment changes.** The top panel of Figure 15 shows the beta coefficients in the regression $real\ wage\ growth_t = \alpha + \beta * unemployment\ rate_t$ for the 2000–2011 period. In countries on the left of the chart, real wages adjust relatively strongly in response to unemployment, whereas in countries on the right, there is very little adjustment. The bottom panel of Figure 15 shows that there is a strong relation between the wage sensitivity and the degree of labor market duality—the higher the share of temporary employment, the less responsive real wages are to unemployment rates.

27. **To the extent that employment losses are the result of firms shedding labor to improve profits, wage reductions could help mitigate employment losses.** The more wages adjust, the less the employment reductions needed to reduce the wage bill.

Figure 15. Real Wage Sensitivity and Labor Market Duality



1/ Coefficients from regressing real wage growth on unemployment using 2000-11 data, with smaller values indicating higher real wage sensitivity to unemployment rates.



Note: Romania has been excluded, as the relatively small increase in the unemployment rate is not consistent with the sharp drop in employment of employees.
Sources: IMF, World Economic Outlook database; OECD Statistics; World of Work Report 2012; and IMF staff calculations.

VI. ECONOMETRIC ANALYSIS

28. **Econometric regression analysis confirms that the three factors discussed so far (real GDP growth, corporate balance sheet repair, and labor market duality) all contributed to the large cross-country differences in employment growth during 2008–11:**⁶

- Real GDP growth was the most important factor behind differences employment growth, contributing for around two thirds of the cross-country differences (Table 1, Columns 1 and 2).
- The profit share increase was the second most important. When included in the regression alone, it explained about 1/3 of the cross-country variations (Table 1, Columns 3 and 4); and when added to a regression that also included real GDP growth, it improved the R^2 from 0.64 (Table 1, Column 1) to 0.81 (Table 1, Column 5). The regression takes into account the fact that profit share increase may be endogenous, by using the pre-crisis debt increase and profit share decline as instrumental variables.⁷
- Adding the share of temporary employment further improved the fit of the model, raising the R^2 from 0.84 (Table 1, Column 6) to 0.89 (Table 1, Column 8).⁸

29. **The results are robust to introducing other pre-crisis imbalance measures in the model.** Two often discussed imbalance measures—current account deficits and the size of the construction sector—are considered in the regressions in Table 2. When included alone with real GDP growth, the relationship between these two measures (in levels or as pre-crisis changes) and employment growth during the 2008–11 period was indeed strong. But when they are added to the model (Column 8 of Table 1), they are not statistically significant and do not seem to bring any extra explanatory power, while the original regressors all remain highly significant. Admittedly, the various pre-crisis imbalance measures tend to be correlated.

⁶ Detailed data information is provided in Tables A.1 and A.2.

⁷ Both instrumental variables have strong links with the profit share change during the crisis period, as shown in Table 3.

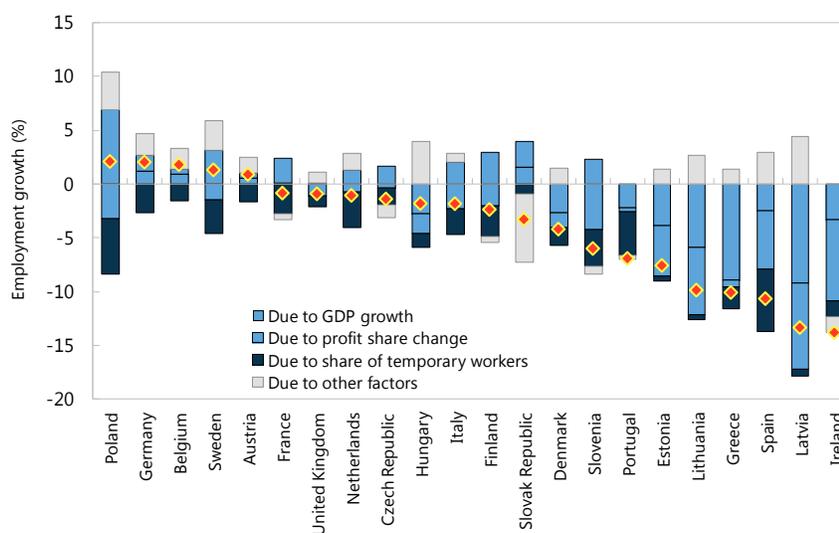
⁸ Column 8 includes a dummy variable for Slovakia, because it is an outlier in that its share of temporary workers did not seem to have a significant impact on its employment losses during the sample period. The results are robust to dropping any other single country from the sample.

Countries where corporate debt increased rapidly during the boom years often had high and widening current account deficits as well.⁹

30. **An analysis of the quantitative contribution by each of the three factors confirms the important role of the increase in corporate profits in the large drop in employment that occurred in a number of countries.** Figure 16 shows the quantitative contribution of each of the factors to employment growth, using the results of the regression analysis. It shows that among all the countries where employment dropped by more than 7 percent, with the notable exception of Greece¹⁰, the increase in profits accounted for more than 50 percent of the losses¹¹. For example, in Latvia, where employment decreased by 13 percent during 2008–11, around 8 percentage points was explained by the increase in the profit share.

31. **Labor market duality contributed significantly to employment reductions in a few countries as well.** Among the countries with employment declines, the contribution of labor market duality exceeded 4 percentage points in Spain, Poland and Portugal.

Figure 16. Decomposition of Employment Growth 2008-11^{1/}



^{1/} Based on the regression in Column (9) of Table 1.

Sources: IMF, World Economic Outlook database; Haver Analytics; and IMF staff estimates.

32. **The change in profit share of the nonfinancial corporate sector during 2008–11 is closely linked to the pre-crisis profitability decline and debt increase (Table 3).** Countries with larger pre-crisis debt increase and more severe profitability decline tended to have larger increases of profit share during the crisis period. The two factors together

⁹ By contrast, the correlation between the size of the construction sector and the build-up of corporate debt was very low.

¹⁰ In Greece, which did not have a corporate borrowing boom before the crisis, the drop in employment largely seems to reflect the drop in output.

¹¹ The impact of the profit share increases on employment is even larger if the impact of profit share increases on GDP growth is taken into account. In countries where profit shares increased sharply, GDP growth was very negative (Figure 9).

accounted for 60 percent of the cross-country profit share increase variations during 2008–11.

33. **Regression of employment growth on the *pre-crisis* deterioration in the profit share and increase in debt explains more than two thirds of the cross-country variation in employment growth** between 2008 and 2011 (Table 4), suggesting that the mechanism described in this paper has indeed been important.

VII. POLICY IMPLICATIONS

34. **The analysis in this paper suggests that while the large employment losses in many countries have been very painful, they may have a silver lining:** they have contributed to the much needed restoration of the financial health of the corporate sector. It is noteworthy that profits in several of the most crisis-affected countries, after a sharp deterioration in the pre-crisis years, have rebounded strongly. While the adjustment has deepened the recession, it has also help set the stage for renewed growth.

35. **It is difficult to determine ex-ante *when* the corporate adjustment will have run its course.** There is no “norm” for the profit share, and pre-boom levels may be too low given the increased debt level. There are, however, signs that in at least some of the crisis-hit countries, the process may be nearing its end. In Ireland, the profit share stopped increasing during 2012, and the wage bill ended its decline (Figure 17). It was also visible in employment, which started growing again, and unemployment, which has started to come down.

36. **The results also suggest that there is a trade-off between wage adjustment and employment losses and that in some countries employment losses would have been less if wages had adjusted more.** To restore profits, firms need to reduce the wage bill, and this can occur either through price adjustment or though quantity adjustment. The less wages adjust, the higher will be the decline in employment. Countries with dual labor markets tend to have less adjustment of wages, and consequently have seen larger declines of employment. To the extent that wage adjustment is associated with lower employment losses, it also does not need to have a negative impact on aggregate demand.

Figure 17. Ireland: The Resumption of Employment Growth



Source: Haver Analytics.

Table 1. Determinants of Employment Growth During 2008-11

Dependent variable	(1)	(2) 1/	(3)	(4) 1/	(5)	(6) 1/	(7)	(8) 1/
Employment growth, 2008-11	OLS	OLS	IV	IV	IV	IV	IV	IV
Real GDP growth, 2008-11 (percent)	0.757*** (0.126)	0.783*** (0.129)			0.553*** (0.109)	0.571*** (0.102)	0.615*** (0.113)	0.681*** (0.096)
Nonfinancial corporate profit change 2/ (percentage points, as share of GDP)			-1.281*** (0.282)	-1.386*** (0.307)	-0.669*** (0.175)	-0.755*** (0.167)	-0.682*** (0.169)	-0.812*** (0.143)
Share of temporary employment in 2007 (percent)							-0.110 (0.067)	-0.182*** (0.059)
Dummy variable for Slovakia		-3.242 (3.218)		-5.353 (4.653)		-5.483** (2.316)		-7.710*** (2.103)
Constant	-2.119*** (0.727)	-1.906** (0.757)	-2.332** (0.962)	-1.952* (1.055)	-1.756*** (0.557)	-1.349** (0.546)	-0.203 (1.086)	1.377 (0.997)
Observations	22	22	22	22	22	22	22	22
R-squared	0.643	0.661	0.344	0.323	0.807	0.841	0.830	0.890

1/ These regressions include a dummy variable for Slovakia. To columns (2), (4) and (6), the inclusion of the dummy is not essential, but rather for consistent comparisons with column (8).

2/ Instrumented by the debt increase and profit share decline during 2003-08.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 2. Check on Other Pre-crisis Imbalance Measures

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Employment growth, 2008-11										
Current account deficits, 2008 (percent of GDP)	-0.286** (0.106)	0.081 (0.106)							0.066 (0.113)	
Increase of current account deficits, 2003-08 (Percentage points, as share of GDP)			-0.432** (0.182)	0.009 (0.171)						-0.019 (0.172)
Size of construction sector (percent of gross value-added)					-0.890*** (0.260)	0.304 (0.351)				0.245 (0.351)
Increase in size of construction sector, 2003-08 (Percentage points, as share of gross value-added)							-0.475 (0.416)	0.524 (0.365)		0.528 (0.374)
Real GDP growth, 2008-11 (percent)	0.536*** (0.137)	0.751*** (0.126)	0.615*** (0.128)	0.686*** (0.122)	0.630*** (0.108)	0.731*** (0.113)	0.728*** (0.128)	0.715*** (0.098)	0.778*** (0.143)	0.706*** (0.125)
Nonfinancial corporate profit change 1/ (percentage point, as share of GDP)		-0.855*** (0.177)		-0.814*** (0.160)		-0.904*** (0.214)		-0.867*** (0.159)	-0.919*** (0.232)	-0.863*** (0.174)
Share of temporary employment in 2007 (percent)		-0.202*** (0.068)		-0.184** (0.079)		-0.217** (0.077)		-0.178*** (0.060)	-0.227** (0.084)	-0.173** (0.080)
Dummy variable for Slovakia		-8.645*** (2.612)		-7.749*** (2.321)		-9.314*** (3.057)		-10.274*** (2.863)	-9.760** (3.399)	-10.215*** (3.039)
Constant	-1.570** (0.667)	1.593 (1.102)	-1.601** (0.690)	1.407 (1.185)	4.258** (1.950)	-0.158 (2.035)	-1.641* (0.834)	0.998 (1.040)	0.312 (2.104)	0.934 (1.223)
Observations	22	22	22	22	22	22	22	22	22	22
R-squared	0.741	0.885	0.725	0.889	0.779	0.875	0.666	0.892	0.875	0.893

1/ Instrumented by the debt increase and profit share decline during 2003-08.

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 3. Explanation of Nonfinancial Corporate Profit Share Change During 2008-11

Dependent variable	(1)	(2)	(3)
Profit share change 2008-11			
Debt increase 2003-8	0.138*** (0.036)		0.064 (0.040)
Profit share change 2003-8		-0.660*** (0.135)	-0.488*** (0.170)
Constant	-1.422 (0.996)	0.608 (0.634)	-0.470 (0.915)
Observations	22	22	22
R-squared	0.422	0.544	0.597

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. Employment Growth during 2008-11 and Pre-crisis Balance-sheet and Profitability Deterioration

Dependent variable	(1)	(2)	(3)
Employment growth, 2008-11			
Nonfinancial corporate sector debt-to-GDP ratio change, 2003-08 (percentage points)	-0.180*** (0.040)		-0.090* (0.043)
Nonfinancial corporate sector profit change 2003-08 (percentage point, as share of GDP)		0.837*** (0.151)	0.594*** (0.182)
Constant	-0.437 (1.112)	-3.120*** (0.707)	-1.596 (0.980)
Observations	22	22	22
R-squared	0.500	0.606	0.680

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

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APPENDIX. DATA FOR REGRESSION ANALYSIS.

Table A.1 Data Sources and Variable Constructions

Variable name	Data sources	Variable construction	Remarks 1/
Employment growth, 2008-11 (percent)	IMF, World Economic Outlook database	= 100 * (total employment 2011 / total employment 2008 - 1)	
Real GDP growth, 2008-11 (percent)	IMF, World Economic Outlook database	= 100 * (real GDP 2011 / real GDP 2008 - 1)	
Nonfinancial corporate sector profit share change, 2008-11 (percentage points)	Haver Analytics, EUDATA, Annual Integrated Economic & Financial Accounts by Sector	= profit share of 2011 - profit share of 2008, where profit share = 100 * (1 - compensation of employees / gross value added)	Compensation of employees series code: Y*ND1 Gross value added series code: Y*NB1G
Nonfinancial corporate sector profit share change, 2003-08 (percentage points)	Haver Analytics, EUDATA, Annual Integrated Economic & Financial Accounts by Sector	= profit share of 2008 - profit share of 2003, where profit share = 100 * (1 - compensation of employees / gross value added)	Compensation of employees series code: Y*ND1 Gross value added series code: Y*NB1G
Nonfinancial corporate debt-to-GDP ratio change, 2003-08 (percentage points)	Haver Analytics, EUDATA, (i) Annual Integrated Economic & Financial Accounts by Sector, and (ii) Harmonized ESA95 GDP	= debt-to-GDP ratio 2008 - debt-to-GDP ratio 2003, where debt-to-GDP ratio = 100 * nonfinancial corporate sector debt stock (securities other than shares + loans) / GDP	Nonfinancial corporate sector securities other than shares series code: C*LCSSO Nonfinancial corporate sector loans series code: C*LCLO GDP series code: A*GDPE
Share of temporary employment, 2007 (percent)	OECD, Online OECD Employment database (http://stats.oecd.org/Index.aspx?DataSetCode=TEMP_I); International Labour Organization, World of Work Report 2012.		For data from OECD, the selection is "all persons (sex)" + "total (age)" + "dependent employment (employment status)". Information for Latvia and Lithuania is retrieved from the World of Work Report 2012.
Current account deficits, 2008 (percent of GDP in US dollars)	IMF, World Economic Outlook database		+ indicates current account deficits
Increase in current account deficits, 2003-08 (percentage points, as share of GDP in US dollars)	IMF, World Economic Outlook database	= current account deficits in 2008 - current account deficits in 2003	+ indicates increase of current account deficits
Share of construction sector in gross value added, 2008 (percent)	Haver Analytics, EUDATA, Harmonized ESA95 GDP	= 100 * gross value added of construction / gross value added	Construction gross value added series code: A*VCSN Gross value added series code: A*GVAN
Increase in size of construction sector, 2003-08 (percentage points, as share of gross-value added)	Haver Analytics, EUDATA, Harmonized ESA95 GDP	= share of construction sector in 2008 - share of construction sector in 2003	Construction gross value added series code: A*VCSN Gross value added series code: A*GVAN

1/ In the series codes, * stands for the 3-digit country IFS codes.

Table A.2 Data for Econometric Analysis

IFS code	Country	Employment growth, 2008-11 (percent)	Real GDP growth, 2008-11 (percent)	Nonfinancial Corporate profits-to-GDP ratio change, 2008-11 (percent)	Nonfinancial corporate profits-to-GDP ratio change, 2003-08 (percent)	Nonfinancial corporate debt-to-GDP ratio change, 2003-08 (percent)	Share of temporary employment, 2007 (percent)	Current account deficits in 2008 (percent of GDP in US dollars)	Increase in current account deficits, 2003-08 (percentage points, as share of GDP in US dollars)	Share of construction sector in gross value added, 2008 (percent)	Increase in size of construction sector, 2003-08 (percentage points, as share of gross value added)
112	United Kingdom	-0.9	-1.5	-0.1	1.0	13.8	5.9	-1.0	0.7	7.6	0.5
122	Austria	0.9	0.8	-0.6	1.6	4.6	8.9	4.9	3.2	7.1	-0.3
124	Belgium	1.8	1.4	-0.6	1.7	11.7	8.7	-1.3	-4.7	5.8	0.8
128	Denmark	-4.2	-3.9	1.7	-2.1	31.1	9.1	2.9	-0.6	6.0	0.7
132	France	-0.9	0.1	-2.9	1.0	9.3	15.1	-1.7	-2.5	6.6	1.3
134	Germany	2.0	1.8	-1.8	4.3	-2.8	14.6	6.2	4.3	4.2	-0.2
136	Italy	-1.8	-3.4	-2.5	-3.2	16.5	13.2	-2.9	-2.1	6.4	0.6
138	Netherlands	-1.1	-1.0	-1.6	2.7	-6.7	18.1	4.3	-1.3	5.9	0.2
144	Sweden	1.3	4.6	1.7	2.3	19.7	17.5	9.0	2.1	5.2	0.6
172	Finland	-2.4	-2.9	-3.7	-1.3	19.1	16.0	2.6	-2.2	7.3	1.3
174	Greece	-10.1	-13.1	0.8	0.6	19.9	10.9	-14.9	-8.4	6.8	0.2
178	Ireland	-13.8	-4.8	9.3	-9.8	74.6	8.1	-5.7	-5.7	7.0	-0.9
182	Portugal	-6.9	-3.2	0.5	-1.7	20.7	22.4	-12.6	-6.2	7.3	-0.4
184	Spain	-10.7	-3.7	6.7	-1.0	48.5	31.7	-9.6	-6.1	13.6	1.5
935	Czech Republic	-1.4	-0.5	-2.1	-0.1	-0.6	8.6	-2.1	3.9	6.8	0.1
936	Slovak Republic	-3.3	2.4	-2.9	4.2	-7.9	5.1	-6.6	-0.7	9.6	5.1
939	Estonia	-7.6	-5.6	5.8	-7.9	35.9	2.1	-9.2	2.1	9.8	3.3
941	Latvia	-13.3	-13.5	9.9	-14.2	32.3	3.5	-13.2	-5.1	10.1	3.8
944	Hungary	-1.8	-4.0	2.2	1.3	39.6	7.3	-7.4	0.6	4.9	-0.6
946	Lithuania	-9.9	-8.5	7.7	-6.0	19.4	2.5	-13.3	-6.5	11.2	4.3
961	Slovenia	-6.0	-6.2	-2.9	0.5	34.5	18.5	-6.2	-5.4	8.4	2.1
964	Poland	2.1	10.1	3.9	3.1	1.3	28.2	-6.6	-4.1	7.7	1.5
	Min.	-13.8	-13.5	-3.7	-14.2	-7.9	2.1	-14.9	-8.4	4.2	-0.9
	Max.	2.1	10.1	9.9	4.3	74.6	31.7	9.0	4.3	13.6	5.1
	Mean	-4.0	-2.5	1.3	-1.0	19.7	12.5	-3.8	-2.0	7.5	1.2
	Std. dev.	5.0	5.3	4.2	4.7	19.7	7.9	6.9	3.8	2.2	1.6

Sources: Haver Analytics; World of Work Report, 2012; IMF, World Economic Outlook database.